CRITICAL EVALUATION OF THE CZECH ODOUR DISPERSION MODEL - COMPARISON WITH OTHER APPROACHES

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ABSTRACT

The Czech dispersion model SYMOS'97 designated for calculations of dispersion of passive (non-reactive) buoyant, continuous release from single or multiple sources has been adapted for the assessment of dispersion of odorous substances. The odour subjective perception by humans is proportional to the instantaneous peak concentration of the odorant rather than to mean values. The SYMOS model, similarly as other dispersion models of this class, is set for the calculation of hourly mean concentrations. The basic procedure how to modify the SYMOS for the odour concentration assessment consisted in recalculation of hourly means reached in particular hours into corresponding peak values which might occur during these hours is described. Widely used peak-to-mean ratio (P/M ratio) approach has been selected as suitable. The main advantage of the proposed approach inheres in the fact that most input data management and calculation procedures included in the SYMOS modelling system could be maintained.

On the other hand, this simplification might result in discrepancy of model results with the measured data, however uncertain the odour concentration measurements might be. Other models for odour calculations using more sophisticated approach were put into operation recently, e.g. ADMS or AUSTAL-G. A critical evaluation of the modified SYMOS model in comparison with other models for odorous substances available in the Czech Republic has been provided and comparison of model results, using the datasets published by Ingeneurbureau Lohmayer has been performed. The strategy of development and application of odour models in Czech will be formulated taking these comparison results into account.

EXTENDED ABSTRACT NOT SUPPLIED